

## Northern Engraving Corporation

### Cooperative Environmental Agreement Annual Report 2008

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#### Contents

Introduction	page 3
Collective Summary of 2008	3
Cooperative Agreement Report Interested Persons Group Commitments to Superior Environmental Performa Compliance Operational Flexibility Overall Assessment of the Success of the Agreem	5 6
Appendices	
1. Sparta Data Objectives and Targets for 2008/2009	7 11
<ol> <li>Holmen         Data         Objectives and Targets for 2008/2009     </li> </ol>	13 17
<ul> <li>3. West Salem</li></ul>	19 23 25 27

### Northern Engraving Corporation

#### Introduction

On June 10, 2002, following a Public Comment Period and formal public hearing, the Wisconsin Department of Natural Resources (WDNR) and Northern Engraving Corporation (NEC) signed an Environmental Cooperative Agreement that included the NEC facilities in Sparta and Holmen, Wisconsin. This Agreement was amended on June 23, 2003, to allow the inclusion of the West Salem and Galesville, Wisconsin, facilities. It was established and is maintained pursuant to Section 299.80, Wis. Statutes, to evaluate innovative environmental regulatory methods including whole-facility regulation. In April, 2006, the Galesville facility was closed and, therefore, withdrawn from the Agreement.

On June 7, 2007 the WDNR and NEC signed a five year extension to the Environmental Cooperative Agreement. Due to time constraints this extension was issued without planned amendments. On September 4, 2007 an amendment to the extended Cooperative Agreement was signed by both parties. The amended agreement allowed NEC to discontinue the six month reporting requirement of actual facility wide VOC and HAP emissions and allowed more time for construction and initial operation for future construction permits.

Northern Engraving Corporation remains an active and dedicated steward of the environment. Internally, the environmental policy commits the company to reducing waste, continually improving processes, and doing no harm to the environment. All facilities are registered to the international environmental standard, ISO 14001, and receive annual audits from our third-party registrar Quality Management Institute. The environmental management system gives the plants the tools needed to analyze environmental impacts, set objectives and targets, develop supporting programs, review results and redirect efforts. By using these tools and developing employee involvement, each facility has experienced ongoing success (See Appendices).

#### **Collective Summary of 2008**

Data from calendar year 1996 through calendar year 2008 show that plant emissions of volatile organic compounds (VOC) and hazardous air pollutants (HAP) from the three Cooperative Agreement facilities decreased 77% (236 tons/year) and 93% (111 tons/year), respectively. In comparing the three facilities' 2008 emissions to 2007, VOCs and HAPs were reduced 15% (12.5 tons/year) and 18% (1.2 tons/year), respectively.

In 2008, these facilities used 81% less water than in 1996.

During the 1996-2008 period, the three Cooperative Agreement facilities' generation of hazardous and solid wastes decreased 80% (47,090 gallons/year) and 8% (1,288 tons/year), respectively. Non-hazardous waste increased by 60% since 1996. After having peaked in 2005 non-hazardous waste generation has steadily declined. Generation of this type of waste in 2008 vs. 2007 decreased by almost 18% or 1,700 gallons.

The environmental management system was instrumental to the success of the corporation's environmental initiatives. In 2008, the Cooperative Agreement facilities set a total of 10 objectives accompanied by 13 specific targets (7 of which were numeric targets). Some of the significant environmental successes of 2008 were the following:

Reductions in the use of natural gas at the three facilities resulted in 5% reduction in carbon dioxide emissions from fuel burning.

Process improvements for the purpose of improving product yield resulted in fewer wastes and emissions in all of NEC's facilities.

Holmen reduced its hazardous waste generation by 1,200 gallons.

West Salem was able to implement the use of a phosphate free cleaner for aluminum, reducing phosphate discharges by 69%.

#### **Cooperative Agreement Report**

#### **Interested Persons Group:**

On July 15, 2008, the Northern Engraving Interested Persons Group, represented by Dr. Ronald T. Amel, Mark Wienkes, Tim Vernier Jordan Skiff, Mark Harings, Darrell Zietlow and Randy Nedrelo met in Sparta. After an update of Northern Engraving's business situation and air permit applications in 2008, the Group reviewed the major environmental projects undertaken during the past year, the environmental targets and objectives for 2008. The corporate staff then updated the members on the progress of remediation activities at the Sparta facility; showing pictures of the installation of remediation equipment. Since Dr. Ronald T. Amel and Cindy Struve were unable to attend an electronic copy the presentation was sent to them.

Because of the holidays and Northern Engraving being shut down for two weeks in December; NEC conducted a virtual meeting. A report was sent to all members via email. This included information regarding Northern Engraving's current business situation, recent construction permits, the results of the 2008 ISO 14001 environmental objectives, and the progress of the remediation projects at the Sparta facility. Group members were given the opportunity to contact Northern Engraving with comments or questions; however, no comments were received.

#### **Commitment to Superior Environmental Performance:**

Internal audits of the environmental management system continue to be conducted at each facility. All elements of the environmental management system are audited at least once annually. These audits are conducted by trained and impartial auditors from corporate headquarters or another Northern Engraving facility.

At each facility an annual surveillance audit of the environmental management system was conducted by a third-party auditor. For 2008, these audits totaled six man-days. There were no non-conformances found. Only two opportunities for improvement were identifies and these were at Sparta. None of these required a formal corrective action.

#### Sparta

"Consider enhancing the training efforts for the Spanish speaking population to ensure key points of the Policy are understood as well as other key requirements of the EMS."

"Consider updating the internal audit schedule to ensure documentation reflects that Element 4.4.1 is covered during the audit process (the various checklists do suggest and indicate that 4.4.1 is audited but form F-2179-B does not list this section). Also consider more clearly documenting when an "observer" is utilized during the internal audits verses an audit team member."

Each manufacturing facility reviewed its environmental aspects for their operations and established its own significant environmental aspects based on the degree of impact on health and the environment, and the frequency of this impact. Objectives and targets were then established to address the significant environmental aspects. Environmental objectives and targets for 2008 and 2009 can be reviewed in greater detail in the appendices.

#### Compliance:

On July 15<sup>th</sup> EPA conducted a RCRA (waste management) inspection at the West Salem facility. There were no violations found.

On December 15<sup>th</sup> the Wisconsin DNR conducted an air management inspection at the Sparta facility. There were no violations found.

Holmen was not inspected in 2008.

#### **Operational Flexibility:**

(For a brief explanation of acronyms and terms, see the glossary at Appendix 5)

#### Time saved in obtaining air permits:

One construction permit was submitted in 2008. Formal written permission to construct was received in 48 days following submittal. Time saved under this Agreement is estimated to be 35 days

#### Time saved by the reduction in record keeping and administrative requirements:

These were established during the first year of the Agreement and are as follows:

Requirement Eliminated: Approximate Time Saved:

Calculations for demonstrating RACT compliance

West Salem 3.5 hours/day Sparta 2.5 hours/day

Calculation of VOC and HAP emissions 0.75 hr/day per facility

Compiling formulas for demonstrating LACT compliance

Sparta 10 hr/month Holmen 10 hr/month West Salem 20 hr/month

Discontinuation of reporting the above calculations

10 hr/yr per facility

as part of the annual monitoring summary.

#### **Energy savings from avoiding the use of the thermal oxidizer:**

Prior to the Cooperative Agreement, West Salem was required to operate two thermal oxidizers and Sparta was required to operate one thermal oxidizer from 1 May through 31 September to meet permit requirements. It is estimated that West Salem and Sparta avoided the usage of over 2400 MCF and 2500 MCF/month respectively, of natural gas associated with thermal oxidation for RACT.

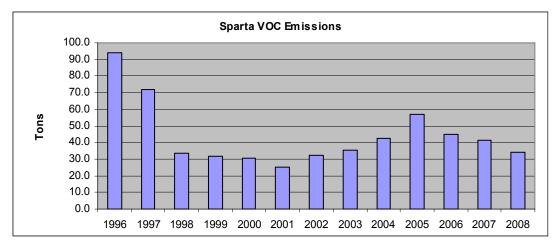
#### **Overall Assessment of the Success of the Agreement:**

For NEC the Cooperative Agreement offers a valuable tool for competing in an ever changing and highly competitive, global marketplace. The environmental management systems at Sparta, West Salem, and Holmen are now ten, nine and six years old, respectively. As mature and successful systems they must concentrate on retaining environmental improvements while searching even deeper in their processes for innovative pollution prevention and waste reduction measures. The time saved, as a result of this agreement, allows NEC personnel to devote more of its effort toward pollution prevention and waste reduction measures. Reducing waste not only benefits the environment, it also helps NEC to contain its costs.

A strong working relationship has been developed with the Wisconsin Department of Natural Resources (WDNR). NEC values this working relationship and looks forward to continuing it into the future; whether the continuation of this Agreement or ultimately through the Green Tier program.

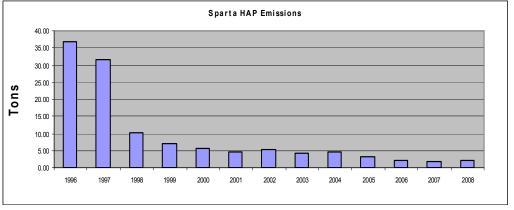
Appendix 1: Sparta Air Emissions

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
VOCs (tons/year)	94.3	72.0	33.4	32.0	30.3	25.4	32.5	35.4	42.7	57.0	44.9	41.4	34.0
NOx	5.7	7.6	5.1	4.0	4.7	4.62	5.00	5.30	5.71	5.90	4.90	4.46	
CO	1.2	1.7	2.0	2.8	2.9	2.63	2.10	2.00	2.52	2.61	2.47	2.22	
CLEAN AIR ACT C	HEMICAL	S (lb/yr)											
CHEMICAL NAME	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Glycol Ethers	9,877	12,490	3,704	4,900	5,910	4,003	4,197	4,639	5,180	0	8002	2,800	1,800
Cumene	258	101	178	67	42	182	12	9					
Dimethyl-													
,formamide	84	819	435										
Ethyl Benzene	3,210	2,587	1,204	895	771	577	831	455	400	600	400		400
Formaldehyde	8	2	3	2	3	4	6	5		16			
Hydrogen Fluoride	140	140	252	314	305	265	197	192					
2,2,4 Trimethyl-													
pentane							184	214	200	280	200	200	
Isophorone	1,085	3,917	1,986	983	558	314	338	101	880	1,300	400		
Methyl Alcohol	204	187	112	84	57	31	95						
MEK	13,859	11,532	1,753	867	923	540	232	142	140	480	0		
MIBK	7,248	4,094	84	136	168	84	138		60	20			
Methylene Chlo-													
ride	2,201	2,351	5,089				101	166	220	360	200		
Naphthalene	202	1,565	387	81	120	76	223	117	220	200	200	200	200
Toluene	21,636	16,431	844	736	245	315	171	28	200	640	600	400	400
Xylene	11,297	4,722	2,749	4,805	2,387	2,429	3,468	1,936	1,240	2,240	1,200		1,200
Perchloroethylene	2,152	2,398	1,665				55	91	140	200	200		
Total Tons	36.73	31.67	10.22	6.94	5.75	4.42	5.13	4.11	4.48	3.23	2.20	1.80	2.00



18% reduction in 2008. More processes were modified to eliminate process steps where able and still meet specifications. Reduction in production levels also contributed to this decrease.

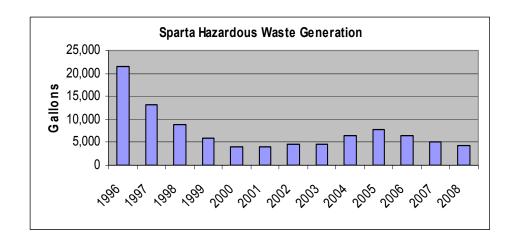
11% increase in 2008. HAP emission levels remain at historical lows.



### Appendix 1: Sparta Hazardous Waste Generation

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Solvent Waste	gals	9,374	5,388	4,309	1,762	439	1,265	1,705	1,045	1,210	1,540	1,210	935	880
Coating (Design)	gals	0	0	0	0	0	0	0	440	440	605	330	330	220
Liquid Coating	gals	8,470	4,565	2,200	1,678	1,210	825	935	660	990	1,375	880	770	605
Solid Coating	gals	1,650	1,045	852	1,045	1,169	715	660	550	770	935	770	660	550
Ink Waste	gals	1,540	1,375	1,072	729	798	550	550	550	550	550	550	440	275
Norlens Waste	gals	605	478	522	358	0	0	0	0	0	0	0	0	0
Alodine Sludge	gals	0	385	0	220	138	110	0	55	110	55	605	0	0
Still bottoms	gals	0	0	0	165	385	495	660	550	660	825	605	660	550
CWU	gals	0	0	0	0	0	0	0	1100	2,200	2,475	1,760	1,650	1,320
Hydroxide Sludge	tons	53.8	0	0	0	0	0	0	0	0	0	0	0	0
Sparta Totals	gals	21,639	13,236	8,955	5,957	4,139	3,960	4,510	4,950	6,930	8,360	6,710	5,445	4,400

<sup>\*</sup> Hazardous waste sent to a Treatment Storage Disposal facility is included in this table. Hazardous waste distilled internally by Northern Engraving is excluded.

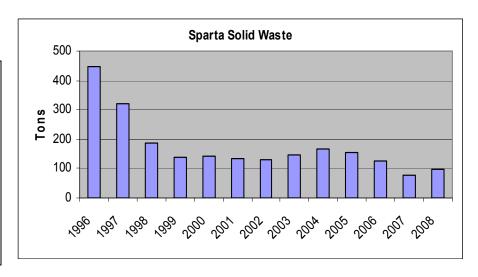


Hazardous waste reduction was a target in 2008. Reductions resulted from employee training, control of solvents for clean up and process changes to reduce manufacturing process steps.

#### Solid Waste

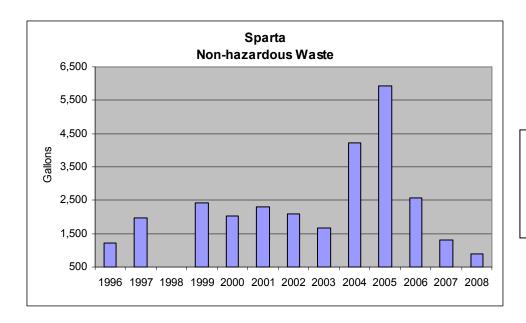
**Tons** 448 

22% increase in 2008. This was partially the result of the collapse of the plastic recycling market. For a period of several months there was no outlet for the recycled plastics. When a new recycler was found some materials that were previously recycled now had to be discarded as waste. Reducing solid waste generation is an environmental objective for 2009.



### Appendix 1: Sparta Non - Hazardous Waste Generation

Hazardous Waste	Unit	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Damascene Sludge	gals.	1,100	1,760	275	275	495	660	660	55	660	1,100	935	1,100	660
Oil Absorbents	gals.	110	220	110	1,210	1,210	1,320	1,265	1,408	3,245	4,235	1,155	0	0
Norlens Waste	gals.	0	0	0	55	330	330	165	220	220	330	330	220	165
Hydroxide Sludge/ Waste	-cubic													
water Treatment Sludge	yds	0	12	24	36	24	24	36	12	12	12	0	0	0
Totals	sgals.	1,210	1,980	385	2,420	2,035	2,310	2,090	1,683	4,235	5,940	2,585	1,320	880

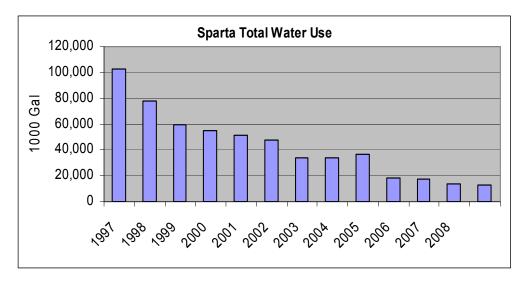


33% reduction in 2008. Continuation of programs initiated prior to 2008, along with declining production were the main reasons for the reductions.

#### **Water Use**

Total Water 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 1000 gal 102,783 77,764 59,139 54,528 18,145 17,096 51,394 47,439 33,724 34,300 36,953 13,890 13,158

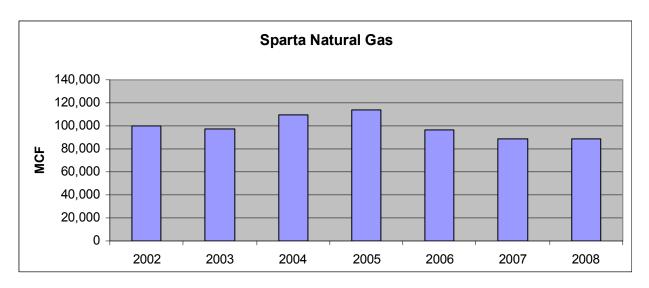
5% reduction from 2007. Work is being transferred from another Northern Engraving facility to Sparta. This will include several additional washers. Because of this water use reduction is a target in 2009.

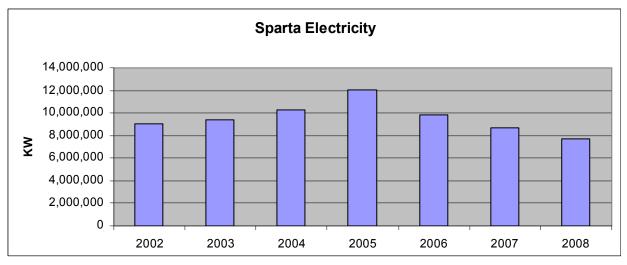


### Appendix 1: Sparta Energy Use

	2002	2003	2004	2005	2006	2007	2008
Natural Gas (MCF)	99,778	97,383	109,193	114,288	96,348	88,547	88,289
Electricity (KW)	9,055,249	9,399,784	10,305,400	12,032,000	9,806,000	8,688,000	7,726,000

Reductions of 0.3% for natural gas and 5% for electricity from 2007. Last years projects included continued removal of unnecessary lighting, rewiring to allow lighting and equipment to be shut off when not in use, A complete air leak survey was completed in 2008. Cost constraints hindered progress in reducing natural gas use in 2008.

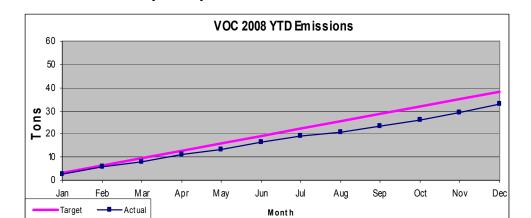




#### **Appendix 1: Sparta's Objectives and Targets Program**

#### Results for 2008

Objective 1: Reduce facility VOC emissions by 4% CY 2008 vs. CY 2007. VOC emissions declined by nearly 18% in 2008.

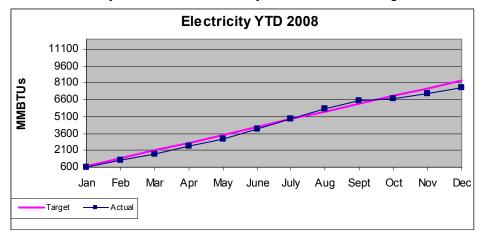


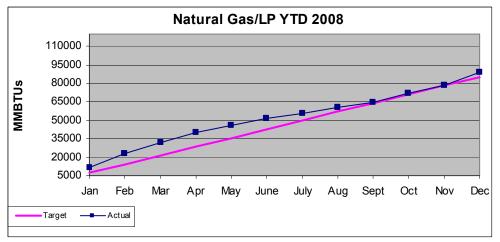
#### Objective 2: Reduce facility energy consumption.

Target: Reduce facility electricity consumption by 4% CY 2008 vs. CY 2007.

Target: Reduce facility Natural Gas/LPG consumption by 4% CY 2008 vs. CY 2007.

2008 electricity use was reduced by 5% while natural gas/LPG use decreased 0.3%.



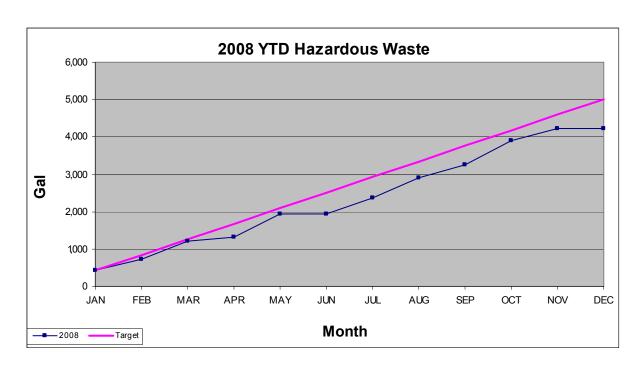


#### Appendix 1: Sparta's Objectives and Targets Program - Continued

Objective 3: Reduce hazardous waste generation by 2% CY2008 vs. CY2007.

Hazardous waste generation was reduced by 17% in 2008.

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#### **Sparta's 2009 Objectives and Targets**

- 1. Objective: Reduce facility solid waste generation by 5% CY 2009 vs. CY 2008.
- 2. Objective: Reduce facility hazardous waste generation.
  - Target: Develop a program to reduce the amount of solvent used in towels

for clean up by 12/31/09.

Target: Investigate the waste from using PM Acetate for clean up of coaters.

Submit a report to facility management by 4/30/09.

3. Objective: Reduce facility water use.

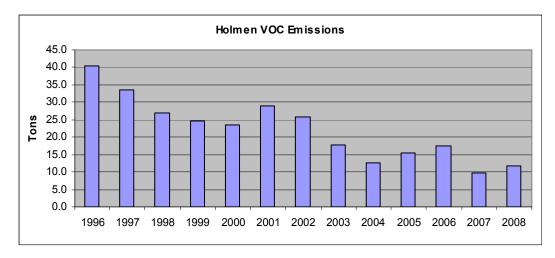
Target: Optimize the volume of water used in washers that are being moved

into the facility.

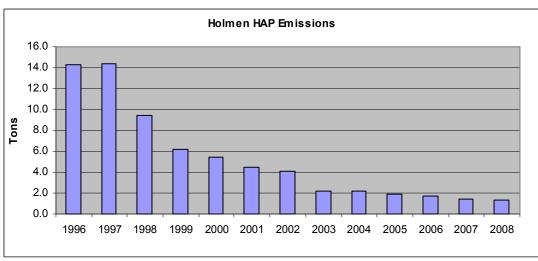
(Note: Sparta will consider a water reduction target in June of 2009.)

### Appendix 2: Holmen Air Emissions

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
VOCs (tons/yr)	40.5	33.6	27.0	24.6	23.6	29.0	25.7	17.7	12.7	15.6	17.4	9.7	11.9
NOx	1.0	1.2	0.98	1.02	0.98	0.85	0.72	0.55	0.4	.54	0.62	0.74	
СО	0.2	0.2	0.20	0.20	0.20	0.17	0.14	0.11	0.1	.11	0.12	0.14	
<b>CLEAN AIR ACT CI</b>	HEMICA	ALS (lb/y	/r)										
CHEMICAL NAME	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Glycol Ethers	9,792	9,073	8,987	8,674	8,077	8,080	6,893	3,660	3,980	3,420	3,200	2,600	2,400
Cumene	351		3	14	17	29	11	2					
Ethyl Benzene		322	11	23	3	5	56	25	40				
n-Hexane		238	414	102	86	86	391	340					
Isophorone	1,291	36	628	737	225	5	2						
MEK	3,104	2,017	3,403	1,513	1,111	330	82	84	240	200			
MIBK	58			15									
Naphthalene	49	113	63	158	7	15	50	20	20	80	200	200	200
	13,49												
Toluene	1	13,618	3,778	152	307	62	88	150		20			
Xylene	507	3,418	1,541	910	1,031	406	523	28					
TOTAL (tons)	14.3	14.4	9.4	6.1	5.4	4.5	4.0	2.2	2.2	1.9	1.70	1.40	1.30



VOC emissions increased 23%. Changes in production mix were the primary reason for this increase. Automotive applications make up a higher percentage of the job mix and because of more stringent specifications, most automotive parts require solvent based inks vs. UV inks.



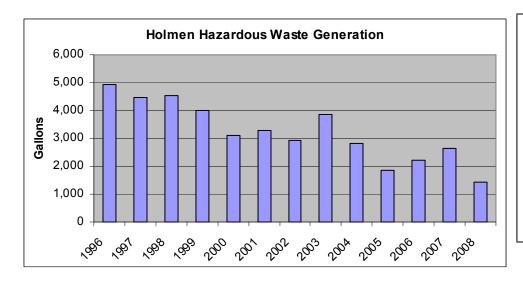
HAP emissions decreased by 7%. HAP emissions at Holmen remains at historic lows.

**Appendix 2: Holmen Hazardous Waste Generation** 

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Solvent														
Waste	gal	3,224	2,548	3,068	2,338	1,354	1,485	1,375	2,365	1,540	935	935	1,100	275
Ink Waste	gal	1.705	1.925	1.485	1.650	1,760	1.815	1.540	1.485	1.265	880	1.265	1.760	1.155
Flexlens	gal	,	,	,	,	,	,	,	,	,	55	,	,	,
**Total	gal	4,929	4,473	4,553	3,988	3,114	3,300	2,915	3,850	2,805	1,870	2,200	2,860	1,430

<sup>\*</sup>Hazardous waste sent to a Treatment Storage Disposal facility is included in this table. Hazardous waste distilled internally by Northern Engraving is excluded.

<sup>\*\*</sup>Total amounts for 2004, 2005, 2006, 2007 and 2008 were reduced 715, 1,100, 1,540, 2640 and 1430 gallons respectively from previous reports to reflect distillation done on-site. These amounts were not wasted.

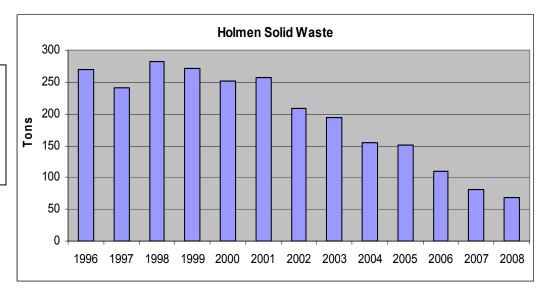


46% decrease in 2008. Investigation showed that distillable solvents were being sent out as hazardous waste. Retraining corrected that. Additionally, ink mixers controlled the volume of ink issued to the screeners based on the number of sheets and the ink coverage on the sheets, for each individual job.

#### **Solid Waste**

tons 

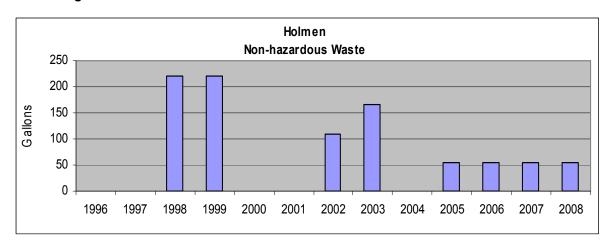
A 14% reduction in 2008, primarily as a result of continued recycling and improvements in product yield.



Appendix 2: Holmen
Non-Hazardous Waste Generation

H	a	za	rc	lo	us	
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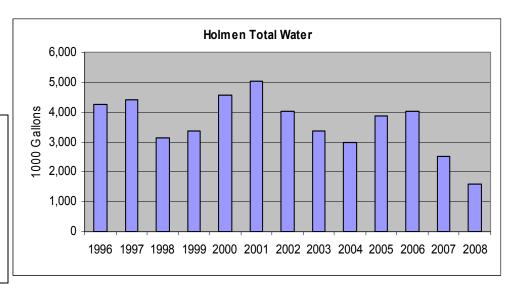
Waste	Unit	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Oil Absorbents	gals.	0	0	0	220	0	0	110	0	0	0	0	0	0
Screen Clean Sol-	_													
vent (1 time)	gals.	0	0	220	0	0	0	0	0	0	0	0	0	0
Digital Ink Waste	gals.	0	0	0	0	0	0	0	165	0	55	55	55	55
Holmen Total	gals.	0	0	220	220	0	0	110	165	0	55	55	55	55



#### **Water Use**

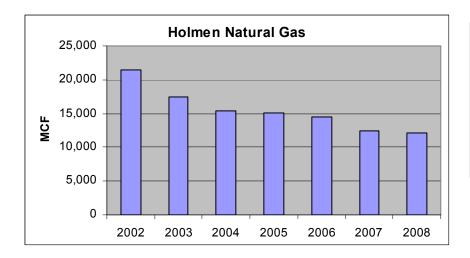
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1000													
Gallons	4,242	4,421	3,123	3,381	4,561	5,024	4,013	3,371	2,989	3,861	4,019	2,517	1,597

Very little water is used in Holmen's manufacturing processes. 2008 water use was reduced by 36%. This reduction was a result of less work in screening; corresponding to needing to make and reclaim fewer screens.

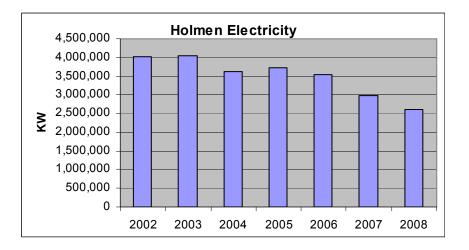


#### Appendix 2: Holmen Energy Use

	2002	2003	2004	2005	2006	2007	2008
Natural Gas (MCF)	21,461	17,432	15,419	15,059	14,436	12,419	12,180
Electricity (KW)	4,029,980	4,039,440	3,609,900	3,735,600	3,542,000	2,978,000	2,620,000



The 5% reduction in natural gas use was the result of less use of the screening ovens due to process changes and reduced sales. Additionally, waste heat from air compressors is now used to heat a neighboring room.



12% reduction in 2008. The reductions were achieved by adding switches to allow unneeded lights to be turned off and conducting a facility wide air leak survey.

#### **Appendix 2: Holmen's Objectives and Targets Program**

#### Results for 2008

**Objective 1:** Improve the environmental efficiency of existing jobs.

Target: Convert 50 jobs to screening jobs to litho or digital printing processes by

6/30/08.

Target: Convert and additional 25 jobs by 12/31/09.

46 jobs were converted by 6/30/08. In 2008 a total of 54 jobs were converted. As this project progressed, no more repeat jobs were available to convert. New jobs are automatically processed using litho or digital printing processes if appropriate. This is an example of changing the way of doing business as a result of setting environmental objectives.

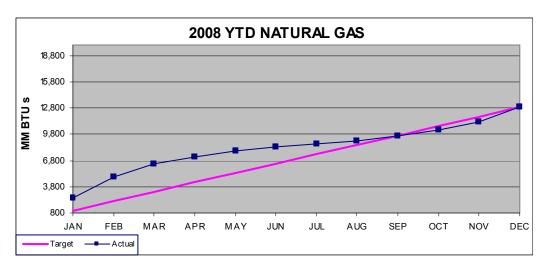
**Objective 2:** Reduce facility energy consumption

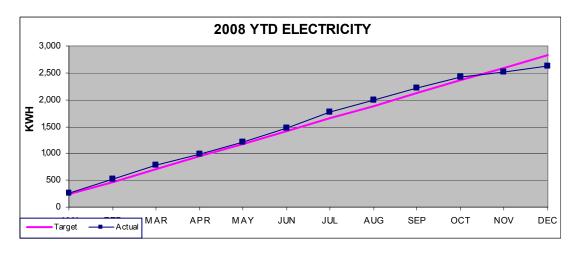
Target: Reduce natural gas/LPG consumption by 5% CY 2008 vs. CY 2007

Natural gas/LPG consumption was reduced 5%.

Target: Reduce electricity consumption by 5% CY 2008 vs. CY 2007

Electricity consumption was reduced 10%.





#### Appendix 2: Holmen's Objectives and Targets Program - Continued

**Objective 3:** Reduce hazardous waste generation by 20% CY2008 vs. CY2007

Hazardous waste generation was reduced by 41%.



#### **Holmen's 2009 Objectives and Targets:**

**Objective 1:** Reduce facility energy use.

Target: Reduce natural gas/LPG use by 5% CY 2009 vs. CY 2008.

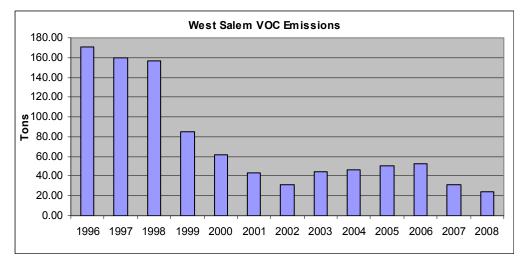
Target: Reduce electricity use by 5% CY 2009 vs. CY 2008.

**Objective 2:** Reduce solid waste generation by 5% CY 2009 vs. CY 2008.

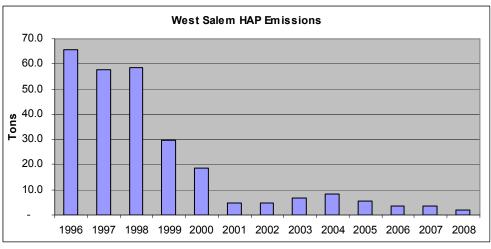
**Objective 3:** Improve plant product yield by achieving yields as reflected in Urgent Turnaround Projects.

**Appendix 3: West Salem Air Emissions** 

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
VOCs (tons/year)	171.33	159.90	157.00	85.00	61.30	43.0	31.0	44.7	47.0	50.1	52.3	31.7	24.3
NOx	1.50	2.08	2.58	1.78	2.04	2	2.06	1.10	2.09	1.95	1.80	1.89	
СО	0.34	0.47	1.43	1.13	1.45	1.53	1.55	0.80	1.07	1.01	0.90	0.99	
CLEAN AIR ACT CH	HEMICALS	S (lb/vr)											
CHEMICAL NAME	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Glycol Ethers	7,964	13,749	16,931	13,327	11,010	6,497	5,312	6,728	9,400	4,740	3,400	4,800	3,000
MEK	30,969	24,648	45,173	29,385	20,423	352	1,489	2,276	2,320	1,680			
Methanol	6,381	6,415	3,554	397	76	181	169	209	140	200		200	
Triethylamine			255	581	1,956	1,606	433	159	300	80			
2,2,4 Trimethyl-								106	240	260	200		
*Toluene	37,071	13,191	5,135	3,278	816	596	1,421	3,090	3,340	3,680	2,200	1,400	800
*Xylene	21,423	22,804	21,478	6,389	1,472	177	335	414	620	260	600	200	200
Vinyl Acetate			198	106	31	9							
*Ethyl Benzene	3,601	6,660	7,951	2,677	671	176	72	179	80		200		
*MIBK	23,717	26,197	15,028	3,027	660	35	1			60			
*Naphthalene	10	33	128	117	42	107	72	41	40	80	200	200	200
	65.6	57.6	58.6	29.8	18.7	4.9	4.7	6.8	8.4	5.5	3.4	3.4	2.1



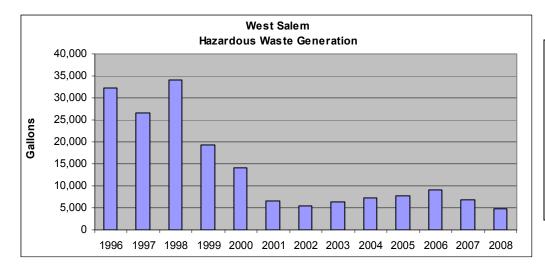
A 23% reduction in 2008. Improving process yields reduced the number of parts that were rejected for quality reasons contributed to this reduction. Changes in job mix and reduced production were also a factor.



HAP emissions decreased by 38%. This was mainly due to changes in job mix and reduced production.

**Appendix 3: West Salem Hazardous Waste Generation** 

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Solvent Waste Solvent Waste Dis-	gal	30,470	22,808	19,363	10,644	6,240	2,184	1,595	2,200	2,475	2,750	2,475	1,815	1,100
tilled Off –site for Reuse Liquid Coat-	gal	NA	NA	NA	NA	3,120	2,080	2,349	2,536	2,384	2,772	4,188	3,371	2,700
ing Waste Solid Coating	gal	880	2,695	9,075	6,655	3,685	1,815	1,100	1,100	1,870	1,870	1,925	1,320	715
Waste Waste Absor-	gal	770	990	5,445	2,035	935	550	440	550	550	385	385	330	220
bents	gal	110	165	165	0	55	55	0	55	0	55	55	0	0
Total	gal	32,230	26,658	34,048	19,334	14,035	6,684	5,484	6,441	7,279	7,832	9,028	6,836	4,735

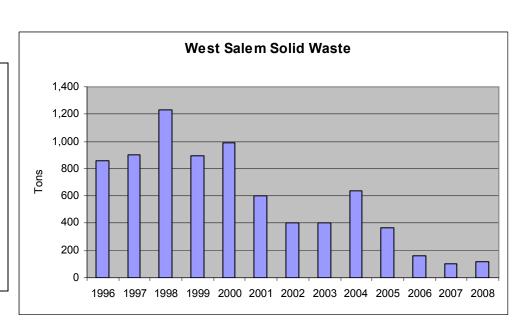


31% reduction in 2008. Reductions were achieved by reviewing how waste was generated and ensuring that people followed the most efficient procedures. This is also reflective of a decrease in sales in 2008.

#### **Solid Waste**

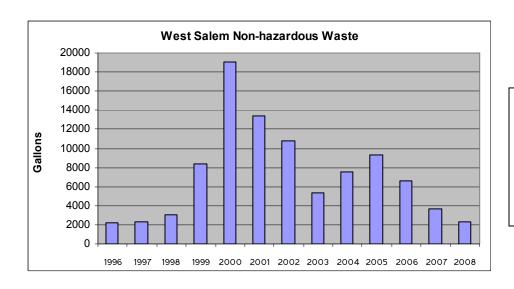
tons 1,235 

Solid waste generation increased by 17%. This was partially the result of the collapse of the plastic recycling market. For a period of several months there was no outlet for the recycled plastics. When a new recycler was found some materials that were previously recycled now had to be discarded as waste. Reducing solid waste generation is an environmental objective for 2009.



#### **Appendix 3: West Salem**

Non-Hazardous														
Waste	Unit	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Mask Washer														
Waste	gals.	2,236	2,184	520	0	0	0	0	0	990	1,870	0	0	0
Damascene														
Sludge	gals.	0	0	52	110	884	275	275	110	110	55	275	550	385
Waterbase Paint	gals.	0	0	0	8,216	18,148	13,090	10,319	3,750	4,840	5,610	5,170	3,080	1,925
Oil Absorbents	gals.	0	0	0	0	0	0	55	1,430	1,650	1,815	1,155	0	0
Oily Water Waste	gals.	0	0	0	0	0	0	110	0	0	0	0	0	0
Antifreeze	gals.	0	110	0	0	0	0	55	0	0	0	0	0	0
Total		2,236	2,294	3,072	8,326	19,032	13,365	10,814	5,290	7,590	9,350	6,600	3,630	2,310

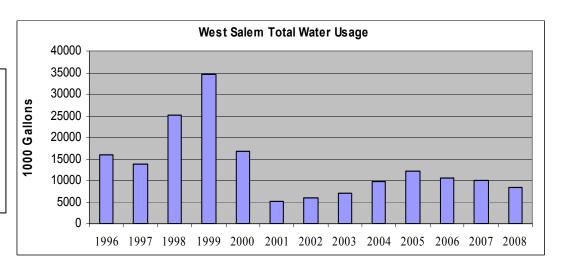


36% reduction in 2008. Improvements in managing mask washer waste and a decrease in clean up from waterbased paints contributed to this improvement.

#### **Water Use**

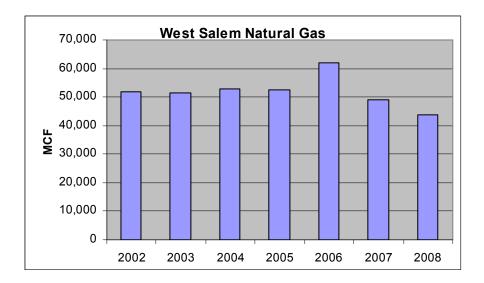
1996 2000 2001 2004 2008 1997 1998 1999 2002 2003 2005 2006 2007 1000 **Gallons** 15,842 13,713 25,105 34,725 16,653 5,011 6,033 7,031 9,715 12,270 10,669 9,893 8,498

14% reduction in 2008. In 2008 NEC concentrated on implementing the use of a phosphate free cleaner for aluminum. This was successful.



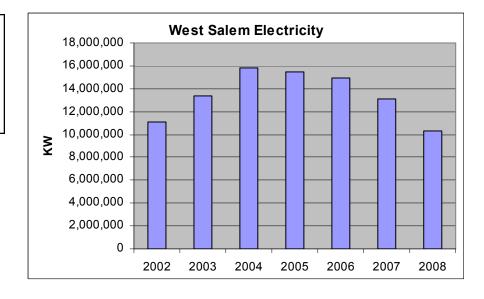
### Appendix 3: West Salem Energy Use

	2002	2003	2004	2005	2006	2007	2008
Natural Gas (MCF)	51,938	51,613	52,925	52,409	61,905	49,357	43,671
Electricity (KWH)	11,083,000	13,329,000	15,784,000	15,438,000	14,979,000	13,139,000	10,339,000



11% reduction in 2008. These reductions were due to decreased use of ovens and an overall reduction in production.

21% reduction in 2008. Projects included decreasing weekend and night lighting, installing a barrel heating system on a molding press and a comprehensive air leak audit.



#### **Appendix 3: West Salem's Objectives and Targets Program**

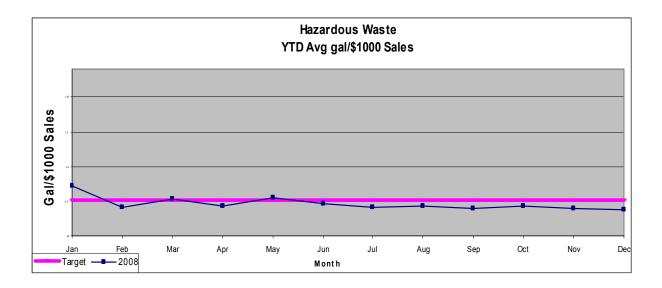
#### Results for 2008

**Objective 1:** Implement the use of a phosphate free cleaner for aluminum.

The facility successfully implemented the use of this cleaner. Phosphate discharge to the POTW was reduced by 69%.

**Objective 2:** Reduce facility hazardous waste generation by achieving as hazardous waste ratio of 0.258 gallons of hazardous waste/\$1000 Sales for CY 2008.

The facility achieved as hazardous waste ratio of 0.192 gallons of hazardous waste/ \$1000 Sales for CY 2008.



**Objective 3:** Reduce facility energy use by implementing three significant energy savings projects by 12/31/08.

Due to financial constraints West Salem was only able to implement two projects in 2008.

- 1. Reduced weekend and night lighting.
- 2. installing a barrel heating system on a molding press.

**Objective 4:** Improve plant product yield by achieving yield improvements as reflected in turnaround projects.

West Salem management identified 20 priority jobs on which to focus efforts for yield improvement. These improvements resulted in a significant reduction in the use of related source materials and energy.

# Appendix 3: West Salem's Objectives and Targets Program - Continued West Salem's 2009 Objectives and Targets:

Objective 1: Reduce solid waste generation by achieving a Solid Waste ratio of 0.060 tons of solid waste/\$10,000 Sales for CY 2009. (Note: this ratio represents a 5% reduction from 2008 waste generation.)

Objective 2: Reduce energy use by achieving a electricity use ratio of 0.527 1000 KWH/\$1000 Sales for CY 2009.

Objective 3: Reduce facility energy use by achieving a Natural Gas/LPG ratio of 2.24 MMBTU/\$1000 Sales for CY 2009.

(Note: Both energy ratios also represents a 5% reduction from 2008.)

Objective 4: Reduce hydraulic oil use. The first target is to evaluate and submit a report to management by 4/30/2009.

A numeric or project target will be considered after the report is complete.

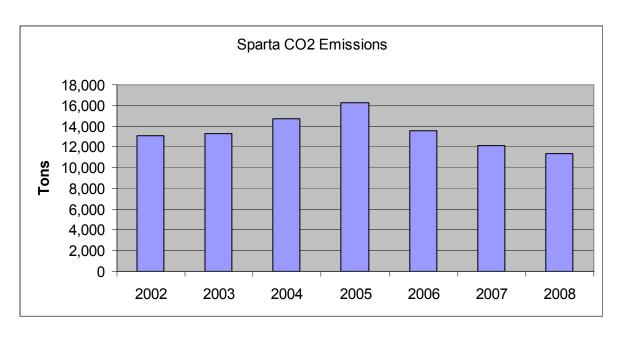
#### **Appendix 4: Greenhouse Gas Emissions**

For Northern Engraving the primary source of greenhouse gas emissions is from the use of energy in its manufacturing facilities. Carbon dioxide  $(CO_2)$  is directly emitted by burning of natural gas at NEC facilities. Use of electricity results in the emission of  $CO_2$  at the generating facility, thus use of electricity results in indirect emissions of  $CO_2$ .

For NEC, changes in CO<sub>2</sub> emissions are associated with changes in the amount of energy used by the corporation. Each NEC facility has an environmental target to reduce energy use. CO<sub>2</sub> emissions decreases are proportional to the energy savings resulting form the environmental programs as each facility.

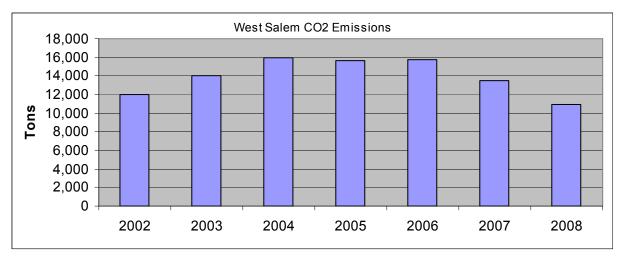
#### **Sparta**

	<u>2002</u>	<b>2003</b>	<u>2004</u>	<u> 2005</u>	<u> 2006</u>	<u>2007</u>	<u> 2008</u>
MMBTU	99,778	97,380	110,904	114,288	97,168	88,792	88,289
tons CO2	5,737	5,599	6,377	6,572	5,587	5,106	5,077
1000KWh	9,055	9,408	10,308	11,928	9,806	8,688	7,726
tons CO2	7,362	7,649	8,380	9,697	7,972	7,063	6,281
Total Tons	13,099	13,248	14,757	16,269	13,559	12,169	11,358
% Change		1.1%	11.4%	10.2%	-16.7%	-10.3%	-6.7%

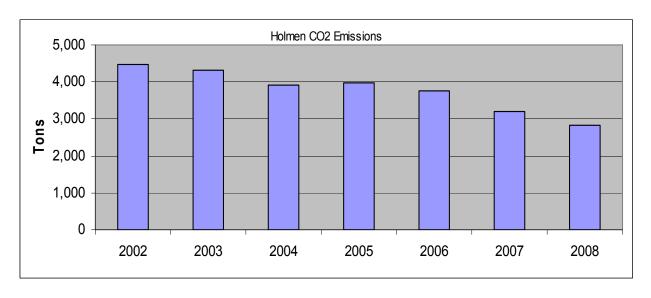


Appendix 4: Greenhouse Gas Emissions - Continued

West Salem	<u> 2002</u>	<u> 2003</u>	<u>2004</u>	<u> 2005</u>	<u> 2006</u>	<u> 2007</u>	<u> 2008</u>
MMBTU	52,420	55,442	54,727	53,439	62,221	49,357	43,671
tons CO2	3,014	3,188	3,147	3,073	3,578	2,838	2,511
1000KWh	11,083	13,319	15,786	15,438	14,979	13,139	10,339
tons CO2	9,010	10,828	12,834	12,551	12,178	10,682	8,406
Total Tons CO2	12,025	14,016	15,981	15,624	15,756	13,520	10,917
% Change		16.6%	14.0%	-2.2%	0.8%	-14.2%	-19.3%



<u>Holmen</u>	<u> 2002</u>	<u> 2003</u>	<u>2004</u>	<u> 2005</u>	<u> 2006</u>	<u> 2007</u>	<u> 2008</u>
MMBTU	17,943	17,762	17,100	16,054	15,402	13,552	12,180
tons CO2	1,032	1,021	983	923	886	779	700
1000KWh	4,249	4,040	3,611	3,737	3,542	2,978	2,620
tons CO2	3,454	3,285	2,936	3,038	2,880	2,421	2,130
Total Tons	4,486	4,306	3,919	3,961	3,765	3,200	2,830
% Change		-4.0%	-9.0%	1.1%	-4.9%	-15.0%	-11.6%



#### **Appendix 5: The Glossary**

VOCs - Volatile organic compounds: Organic materials that evaporate into the air. Examples: Solvents used for cleanup or present in coatings, inks and sprays.

HAPs - Hazardous air pollutants: A group of hazardous chemicals listed by the EPA. These chemicals are believed to carry a greater health risk. Examples: toluene, xylene, glycol ethers, etc.

RACT – Reasonably available control technology: Application of RACT provisions provide the lowest emission rate that a particular source is capable of achieving by the application of control technology that is reasonably available considering technological and economic feasibility. Such technology may previously have been applied to similar, but not necessarily identical, source categories.

LACT – Latest available control technology: This is required when it is determined that a source is technologically infeasible of controlling 85% of its organic compounds. LACT control measures are determined by the permit writer taking into account the control techniques and operating practices used by similar facilities.

NOx – Nitrogen oxides (Emission amounts are determined by the WDNR from data provided by Northern Engraving Corporation.)

CO – Carbon monoxide (Emission amounts are determined by the WDNR from data provided by Northern Engraving Corporation.)

MCF - Thousand cubic feet: The standard measure of volume for natural gas used.

KWH - Kilowatt-hours: The standard measure for electricity used.

YTD – Year-to-Date

Hazardous Waste – Waste with a chemical composition or other properties that make it capable of causing harm to humans and other life forms when managed improperly or released to the environment. Hazardous wastes are characterized for ignitability, corrosivity, reactivity, and toxicity. The majority of Northern Engraving's hazardous waste is ignitable or corrosive.

Solid Waste – All waste sent to a landfill or the La Crosse County waste-to-energy incinerator.

Questions and requests for additional information should be directed to Mary Goodman at the address below:

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Submitted March 27, 2009 by Randy Nedrelo